

AMENDMENT

Please amend the above-identified application as follows:

IN THE CLAIMS:

Please cancel Claims 24-26 and 37-45, without prejudice or disclaimer.

Please amend Claims 1, 3, 27, and 33 as follows:

Sub
C1
Q1
1. (Amended) A method of protecting a female reproductive system against an artificial insult comprising: administering a composition comprising an agent that antagonizes one or more acid sphingomyelinase (*ASMase*) gene products, in an amount sufficient to protect said female reproductive system from destruction caused by said artificial insult, wherein said administration is *in vivo* or *ex vivo*.

Sub
C1
Q2
3. (Amended) The method of claim 62 wherein said natural insult is a consequence of aging, genetic background, physiological factors, environmental factors, or a combination thereof.

Sub
C1
Q3
27. (Amended) A method of preserving, enhancing, or reviving ovarian function in mammals comprising: administering a composition comprising sphingosine-1-phosphate, or an analog thereof to said mammal in an amount effective to preserve, enhance, or revive ovarian function.

Sub
C1
Q4
33. (Amended) A method of preventing or ameliorating menopausal syndromes in women, comprising administering to women, at predetermined intervals, a composition comprising sphingosine-1-phosphate, or an analog thereof in an amount effective to prevent or ameliorate at least one menopausal syndrome.

Please add new Claims 46-71, as follows:

Sub
C1
Q5
46. (New) A method for protecting a female reproductive system from damage caused by treatment for a disease, disorder, or condition, comprising administering to a mammalian female patient in need thereof (a) a treatment effective to treat a disease, disorder,

or condition, wherein said treatment is selected from the group consisting of chemical treatment, radiological treatment, surgical treatment, and combinations thereof and (b) a composition comprising an agent that antagonizes one or more acid sphingomyelinase (*ASMase*) gene products, in an amount sufficient to protect the reproductive system of said female from destruction caused by said chemical treatment, radiological treatment, surgical treatment, or a combination thereof.

47. (New) The method of claim 46, wherein said chemical treatment comprises administration of cytotoxic factors, chemotherapeutic drugs, hormone deprivation, growth factor deprivation, cytokine deprivation, cell receptor antibodies, or a combination thereof.

48. (New) The method of claim 47, wherein said chemotherapeutic drug comprises; 5FU, vinblastine, actinomycin D, etoposide, cisplatin, methotrexate, doxorubicin, or a combination thereof.

49. (New) The method of claim 46, wherein said radiation treatment comprises treatment with ionization radiation, x-ray, infrared radiation, ultrasound radiation, heat, or a combination thereof.

50. (New) The method of claim 46, wherein said agent comprises a small molecule compound.

51. (New) The method of claim 50, wherein said small molecule compound comprises lysophospholipid.

52. (New) The method of claim 51, wherein said lysophospholipid is a sphingolipid compound, or an analog thereof.

53. (New) The method of claim 52, wherein said sphingolipid compound is sphingosine-1-phosphate, or an analog thereof.

54. (New) The method of claim 46, further wherein said composition is administered prior to said treatment.

55. (New) The method of claim 54, wherein said composition is administered at least once from about fifteen days to about two days prior to said treatment.

56. (New) The method of claim 54, wherein said composition is administered at about seven days to about two hours prior to said insult treatment.

57. (New) The method of claim 46, further wherein said composition is administered prior to and during said treatment.

58. (New) The method of claim 46, further wherein said composition is administered during said treatment.

59. (New) The method of claim 46, wherein said composition is administered before, during, and/or after said treatment.

60. (New) The method of claim 46, wherein said composition is administered orally, intravascularly, intraperitoneally, subcutaneously, intramuscularly, intra-uterine, intra-ovarian, rectally, topically, or a combination thereof.

61. (New) The method of claim 46, wherein said a disease, disorder, or condition comprises, cancer, rheumatoid arthritis, angioplasty, or restenosis.

62. (New) A method of protecting a female reproductive system against a natural insult comprising: administering a composition comprising an agent that antagonizes one or more acid sphingomyelinase (*ASMase*) gene products, in an amount sufficient to protect said female reproductive system from pre-mature aging or destruction caused by said natural insult, wherein said administration is *in vivo* or *ex vivo*.

63. (New) The method of claim 62, wherein said female reproductive system comprises ovaries and/or oocytes.

64. (New) The method of claim 62, wherein said female is in a reproductive age.

65. (New) The method of claim 62, wherein said female is in a pre-reproductive age.

66. (New) The method of claim 62, wherein said female is in a post-reproductive age.

67. (New) The method of claim 62, wherein said agent comprises a small molecule compound.

68. (New) The method of claim 62, wherein said small molecule compound comprises lysophospholipid.

69. (New) The method of claim 62, wherein said lysophospholipid is a sphingolipid compound, or an analog thereof.

70. (New) The method of claim 62, wherein said sphingolipid compound is sphingosine-1-phosphate, or an analog thereof.

71. (New) The method of claim 62, wherein said composition is administered orally, intravascularly, intraperitoneally, subcutaneously, intramuscularly, intra-uterine, intra-ovarian, rectally, topically, or a combination thereof.--

REMARKS

Claims 24-26 and 37-45 have been canceled without prejudice or disclaimer. Claims 37-45 have been canceled as they are withdrawn from consideration as the result of a restriction requirement. The limitations of claims 25 and 26 have been incorporated into Claim 1.